

WHAT IS CLAIMED IS:

1. A method of preparing an aliphatic polymer having a ketone group in a main chain thereof, wherein polyhydric alcohol as a raw material is polymerized in the presence of a catalyst.
2. The method of preparing an aliphatic polymer having a ketone group in a main chain thereof according to claim 1, wherein the catalyst is an oxidation catalyst for a hydroxyl group of the polyhydric alcohol.
3. The method of preparing an aliphatic polymer having a ketone group in a main chain thereof according to claim 1, wherein the catalyst is a dehydration catalyst for a hydroxyl group of the polyhydric alcohol.
4. The method of preparing an aliphatic polymer having a ketone group in a main chain thereof according to claim 2, wherein the polyhydric alcohol is polyether polyol.
5. The method of preparing an aliphatic polymer having a ketone group in a main chain thereof according to claim 1, wherein the catalyst is an aqueous solution.
6. The method of preparing an aliphatic polymer having a ketone group in a

main chain thereof according to claim 1, wherein the catalyst is volatile.

7. The method of preparing an aliphatic polymer having a ketone group in a main chain thereof according to claim 1, wherein the catalyst is nonvolatile, and is thermally decomposed at a temperature equal to or lower than the decomposition temperature of the aliphatic polymer having a ketone group in a main chain thereof.

8. The method of preparing an aliphatic polymer having a ketone group in a main chain thereof according to claim 1, wherein the catalyst contains at least one selected from sulfuric acid, nitric acid, hydrogen peroxide, $\text{Na}_2\text{Cr}_2\text{O}_7$, CrO_3Cl , and NaOCl .

9. The method of preparing an aliphatic polymer having a ketone group in a main chain thereof according to claim 1, wherein the catalyst is sulfuric acid.

10. The method of preparing an aliphatic polymer having a ketone group in a main chain thereof according to claim 1, wherein the polyhydric alcohol contains a secondary alcohol and a primary alcohol in a single molecule.

11. The method of preparing an aliphatic polymer having a ketone group in a main chain thereof according to claim 1, wherein the polyhydric alcohol is glycerin.

12. The method of preparing an aliphatic polymer having a ketone group in a main chain thereof according to claim 1, wherein a mixture of the polyhydric alcohol and a diol compound is used as a raw material to polymerize the polyhydric alcohol and the diol compound.

13. The method of preparing an aliphatic polymer having a ketone group in a main chain thereof according to claim 1, wherein the raw material is heated during polymerization.

14. The method of preparing an aliphatic polymer having a ketone group in a main chain thereof according to claim 1, wherein the raw material is heated by an electromagnetic wave during polymerization.

15. The method of preparing an aliphatic polymer having a ketone group in a main chain thereof according to claim 1, wherein the polymerization is conducted such that a hydroxyl group remains in a resultant polymer.

16. A method of preparing a composition containing an aliphatic polymer having a ketone group in a main chain thereof, comprising a step of polymerizing polyhydric alcohol as a raw material in the presence of a catalyst.

17. The method of preparing a composition containing an aliphatic polymer

having a ketone group in a main chain thereof according to claim 16, wherein the catalyst is an oxidation catalyst for a hydroxyl group of the polyhydric alcohol.

18. The method of preparing a composition containing an aliphatic polymer having a ketone group in a main chain thereof according to claim 16, wherein the catalyst is a dehydration catalyst for a hydroxyl group of the polyhydric alcohol.

19. The method of preparing a composition containing an aliphatic polymer having a ketone group in a main chain thereof according to claim 17, wherein the polyhydric alcohol is polyether polyol.

20. The method of preparing a composition containing an aliphatic polymer having a ketone group in a main chain thereof according to claim 16, wherein the catalyst is an aqueous solution.

21. The method of preparing a composition containing an aliphatic polymer having a ketone group in a main chain thereof according to claim 16, wherein the catalyst is volatile.

22. The method of preparing a composition containing an aliphatic polymer having a ketone group in a main chain thereof according to claim 16, wherein the catalyst is nonvolatile, and is thermally decomposed at a temperature equal to or less

than the decomposition temperature of the aliphatic polymer having a ketone group in a main chain thereof.

23. The method of preparing a composition containing an aliphatic polymer having a ketone group in a main chain thereof according to claim 16, wherein the catalyst contains at least one selected from sulfuric acid, nitric acid, hydrogen peroxide, $\text{Na}_2\text{Cr}_2\text{O}_7$, CrO_3Cl , and NaOCl .

24. The method of preparing a composition containing an aliphatic polymer having a ketone group in a main chain thereof according to claim 16, wherein the catalyst is sulfuric acid.

25. The method of preparing a composition containing an aliphatic polymer having a ketone group in a main chain thereof according to claim 16, wherein the polyhydric alcohol contains a secondary alcohol and a primary alcohol in a single molecule.

26. The method of preparing a composition containing an aliphatic polymer having a ketone group in a main chain thereof according to claim 16, wherein the polyhydric alcohol is glycerin.

27. The method of preparing a composition containing an aliphatic polymer

having a ketone group in a main chain thereof according to claim 16, wherein a mixture of the polyhydric alcohol and a diol compound is used as a raw material to polymerize the polyhydric alcohol and the diol compound.

28. The method of preparing a composition containing an aliphatic polymer having a ketone group in a main chain thereof according to claim 16, wherein the raw material is heated during polymerization.

29. The method of preparing a composition containing an aliphatic polymer having a ketone group in a main chain thereof according to claim 16, wherein the raw material is heated by an electromagnetic wave during polymerization.

30. The method of preparing a composition containing an aliphatic polymer having a ketone group in a main chain thereof according to claim 16, wherein the raw material is polymerized such that a hydroxyl group remains in a resultant polymer to obtain a gel substance, and the gel substance is supplied onto a substrate, and then heated and hardened.

31. The method of preparing a composition containing an aliphatic polymer having a ketone group in a main chain thereof according to claim 16, wherein the polyhydric alcohol and an electrically conductive powder are used as the raw material.

32. The method of preparing a composition containing an aliphatic polymer having a ketone group in a main chain thereof according to claim 31, wherein the electrically conductive powder is metal particles.

33. The method of preparing a composition containing an aliphatic polymer having a ketone group in a main chain thereof according to claim 31, wherein the electrically conductive powder is at least one of carbon nanotubes and carbon nanotubes modified by a functional group.

34. The method of preparing a composition containing an aliphatic polymer having a ketone group in a main chain thereof according to claim 31, wherein the electrically conductive powder is carbon nanotubes modified by a functional group with which the polyhydric alcohol is polymerized.

35. The method of preparing a composition containing an aliphatic polymer having a ketone group in a main chain thereof according to claim 34, wherein the functional group is carboxylic acid.